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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,781	02/27/2004	Sheldon Shafer	GEPL.P-093	9454

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EXAMINER	
BOYKIN, TERRESSA M	

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/789,781	SHAFER ET AL.	
	Examiner	Art Unit	
	Terressa M. Boykin	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2004* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7-13-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

Applicant's arguments filed 2-9-05 have been fully considered but they are not persuasive. Applicants' arguments have been considered but are not persuasive in view of the following. Applicants' state that for an anticipation rejection to be proper, the reference "must unequivocally disclose the claimed compound or direct those skilled in the art to the claimed compound without any need for pricking choosing and combining..." Note that the MPEP 2131.02 states " that a reference that clearly names the claimed species anticipates the claim no matter how many other species are named in the reference". (Exparte A, 17 USPQ2d 1716, BPAI 1990) In the instant case, the aromatic diols are clearly disclosed. As noted by applicants' the claimed invention recites 8 possible species of which at least two must be selected. The reference discloses at least three of these diol components. With regard to applicants' assertion, that that a polyester is not interchangeable with a polycarbonate, this is correct. As noted in Hackh's Chemical Dictionary, as well as, Pine's College Organic Chemistry a polycarbonate, i.e. polyester of carbonic acid, is a polyester. Thus, applicants disclose a liquid crystal *polyester* of carbonic acid, which is anticipated by the claimed invention. With regard to the statement that "specific rejection in the text of the office action is actually directed to claim 49, please note page 5 line 3 of the office action mailed 12-8-04. Although stated in the office action summary as well as in the body of the office action, the rejection on page 2 of the office action inadvertently read claims 1-48. The correction has now been made.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-49 are rejected under 35 U.S.C. 102(b) as being anticipated by USPub 2003/0078347 see abstract, pages 2-13, examples 1-4, and claim 42.

Applicants' claims are directed to a method for forming a liquid crystal polycarbonate comprising the steps of forming a reaction mixture comprising (a) an activated diaryl carbonate; (b) at least two species of aromatic diol monomers as claimed and processing the reaction mixture in a melt transesterification reaction to form a liquid crystal polycarbonate.

The reference discloses compositions such as liquid crystal polyesters comprising 2,4,6-trisubstituted-1,3,5-triazine capping agents comprising one, two, or three leaving groups as substituents with any remaining substituents being essentially inert to reaction with a nucleophilic group on a polymer or

monomer, or reactive with a nucleophilic group on a polymer or monomer at a slower rate than any leaving group. The reference also comprises polymers or monomers with nucleophilic groups capped with a triazine moiety. Still other embodiments of the invention comprise processes for capping nucleophilic groups in a polymer or monomer which comprises combining and reacting the polymer or monomer with a triazine-comprising capping agent.

Specifically, with regard to the liquid crystal polycarbonate note that the reference discloses nucleophile-containing polymers of the reference comprise all those known in the art capable of being processed under solution, melt, or slurry conditions, such as, but not limited to, nucleophile-containing thermoplastic, thermoplastic-elastomeric, or elastomeric resins, or oligomers. Illustrative examples include, but are not limited to, nucleophile-terminated polyethers, poly(arylene ether)s, poly(phenylene ether)s, poly(2,6-dimethylphenylene ether)s, polyethersulfones, polyetheresters, polyetherimides, polyamideimides, polyimides, polyetherketones, polyaryletherketones, polyetheretherketones, polyetherketoneketones, poly(arylene sulfide)s, poly(phenylene sulfide)s, polyacetals, polycarbonates, polyesters, poly(alkylene terephthalate)s, polyarylates, liquid crystalline polyesters, polyestercarbonates,

With regard claims 1, 5, 13, 14 to the use of two aromatic diol monomers note that the reference discloses that some illustrative, non-limiting examples of dihydric phenols of formula (XVII) as disclosed therein include the dihydroxy-substituted aromatic

hydrocarbons. In various embodiments of the reference dihydric phenols include 6-hydroxy-1-(4'-hydroxyphenyl)-1,3,3-trimethylindane, 4,4'-(3,3,5-trimethylcyclohexylidene)diphenol; 1,1-bis(4-hydroxy-3-methyl- phenyl)cyclohexane; 2,2-bis(4-hydroxyphenyl)propane (commonly known as bisphenol-A or "BPA"); 2,2-bis(4-hydroxy-3,5-dimethylphenyl)propane; 2,2-bis(4-hydroxy-3-methylphenyl)propane; 2,2-bis(4-hydroxy-3-ethylphenyl-)propane; 2,2-bis(4-hydroxy-3-isopropylphenyl)propane; 2,4'-dihydroxydiphenylmethane; bis(2-hydroxyphenyl)methane; bis(4-hydroxy-phenyl)methane; bis(4-hydroxy-5-nitrophenyl)methane; bis(4-hydroxy-2,6-dimethyl-3-methoxyphenyl)methane; 1,1-bis(4-hydroxyphenyl)ethane; 1,1-bis(4-hydroxy-2-chlorophenyl)ethane; 2,2-bis(3-phenyl-4-hydroxyphenyl)-propane; bis(4-hydroxyphenyl)cyclohexyl- methane; 2,2-bis(4-hydroxyphenyl)-1-phenylpropane; *hydroquinone, resorcinol;* C $_{1-3}$ alkyl-substituted *resorcinols.* See applicants' claims 7, 8, 15, 19, 20, 21, 22-30, 36 and 37-46.

With regard to claim 2, 3, 4, 9, 10, 11, 16, 17, 18, 32, 33, 34, note that the reference discloses that typical carbonate esters which may be employed herein include, but are not limited to, diaryl carbonates, including, but not limited to, diphenylcarbonate, di(halophenyl)carbonates, di(chlorophenyl)carbonate, di(bromophenyl)carbonate, di(trichlorophenyl)carbonate, di(tribromophenyl)carbonate; di(alkylphenyl)carbonates, di(tolyl)carbonate; di(naphthyl)carbonate, di(chloronaphthyl)carbonate, phenyl tolyl carbonate, chlorophenyl chloronaphthyl carbonate, di(methyl salicyl)carbonate, and mixtures thereof.

With regard to applicants' claims 5, 6, 13, 14 and 12, note in one embodiment of

the reference, the acid-acceptor comprises aqueous sodium hydroxide and the reaction is carried out in a two-phase mixture of water and organic solvent, in which case a phase transfer catalyst may optionally be present. Phase transfer catalysts are well-known in the art and include quaternary ammonium and phosphonium compounds.

With regard to claims 31, 47, 48 and 49 note that the reference discloses that in one embodiment in an extrusion process subsequent feedports or further *molding* and extrusion processes may be used to add commonly known additives such as, for example, antioxidants, antistatic agents, inert *fillers*, ultraviolet radiation absorbers and stabilizers, hydrolytic stabilizers, impact modifiers, *mold release* agents, color stabilizers, flame retardants, and the like. Whatever process is used, a nucleophile-capped polymer is isolated using standard methods including, if desired, converting the polymer into pellets. Also the reference notes that capping of nucleophilic groups on polymers may result in cross-linked polymers if the nucleophilic groups comprise pendant groups and a difunctional or trifunctional capping agent is used. Chain-extended, branched, and cross-linked polymers often have improved properties such as increased melt strength for use in making blow *molded articles.*

Thus, the reference discloses a liquid crystal polyester containing an end capping agent. Note that a polycarbonate is in fact a polyester of carbonic acid and thus would anticipate applicants' claimed invention. Note that the definition of a polycarbonate in the Hackh's Chemical Dictionary, which is widely known and used by those skilled in the art, states that "polycarbonates.....thermoplastic linear polyesters of carbonic esters".

Consequently, applicant's claim should be interpreted according to MPEP 211 by

giving the broadest reasonable interpretation consistent with the supporting description. It is noted that the descriptive language of the specification and claim 1 may anticipate a polyester structure which is a polyester of carbonic acid, i.e. polycarbonate. Thus, in view of the above, there appears to be no significant difference between the reference and that which is claimed by applicant(s). Any differences not specifically mentioned appear to be conventional. Consequently, the claimed invention cannot be deemed as novel and accordingly is unpatentable.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Please note that the cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial

sources. Applicants may be referred to the Electronic Business Center (EBC) at http://www.uspto.gov/ebc/index.html or 1-866-217-9197.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Terressa Boykin whose telephone number is 571 272-1069. The examiner can normally be reached on Monday through Friday from 6:30am to 3:00pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. The general information number for listings of personnel is **(571-272-1700).**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tmb

Examiner Terressa Boykin
Primary Examiner
Art Unit 1711